

Remarks

The Applicants note with appreciation the indication of allowability of Claim 10 if rewritten into independent form. Claim 10 has been so rewritten and we respectfully submit is now in condition for allowance.

The Applicants acknowledge the rejection of Claims 1 - 3 over the hypothetical combination of Takahashi and Matsumoto with EP '949. However, we respectfully submit that there are no teachings or suggestions in either the tertiary or secondary reference that would lead one of ordinary skill in the art to make a hypothetical combination with EP '949. With respect to EP '949, we agree that it discloses a gastight nickel/metal hydride button cell storage battery including positive and negative electrodes separated by a separator. The Applicants further agree that the positive electrode has a support and conductor framework in the form of a porous metal foam or felt. The Applicants still further agree with the Examiner's frank acknowledgment that EP '949 does not disclose that the negative electrode has a foam or felt framework or that the positive electrode has a region adjacent the cell case which is free of active material. EP '949 further discloses that the active material embedded in the positive electrode supporter framework is free of additions of conductive agent. That disclosure, as mentioned in the Applicants' Specification in the paragraph spanning pages 1 and 2, has been shown to be deficient in providing a gastight-sealed button cell having an extremely high/low-bearing capacity with reduced overall height that is, at the same time, easy to manufacture.

Unfortunately, the disclosure of Matsumoto would not lead one of ordinary skill in the art to make modifications to EP '949 that would result in the invention as recited in Claims 1 - 3. While the Applicants agree that Matsumoto discloses a negative electrode comprising a metal hydride powder contained in a nickel sponge or felt substrate, we respectfully submit that there is nothing in the Matsumoto disclosure that would lead one of ordinary skill in the art to hypothetically substitute that negative electrode for the negative electrode set forth in EP '949. This is true for several reasons. First, Matsumoto discloses a medium or large-scale battery that is of a type completely different from button cells as claimed herein and as disclosed in EP '949. The

considerations encountered by those of ordinary skill in the art when manufacturing button cells is quite different from those in manufacturing the middle or large-scale batteries referred to in Matsumoto.

The second difference is that the button cells of EP '949 and Claims 1 - 3 herein are gastight and sealed. This is in sharp contrast to Matsumoto that, because of the large scale, among other things, discloses a vented battery. This is because of the very different constructions between button cells and batteries of the type of Matsumoto and the components forming such a Matsumoto-type battery. Thus, one of ordinary skill in the art would not look to Matsumoto to solve problems associated with the manufacture of button cells.

Yet another reason is that Matsumoto provides teachings that are directly opposed to those of EP '949. In particular, EP '949 specifically teaches that the active material embedded in the support/diverter framework of the positive electrode is free of additions of conductive agent. In sharp contrast, Matsumoto specifically teaches that such additives are highly advantageous and produce a better battery. In that regard, we specifically invite the Examiner's attention to Column 4 of Matsumoto, beginning at line 21, where they teach the addition of a wide variety of additives which help in suppressing the rise of temperature of the cell. Unfortunately, addition of such conductive materials would be detrimental to the button cells of EP '949 and, accordingly, we respectfully submit that one of ordinary skill in the art would accordingly look away from Matsumoto.

It must be kept in mind in the context of hypothetically combining one reference with another that it is not proper to simply pick and choose random elements from a disclosure and hypothetically combine that random element with another disclosure while completely ignoring other highly relevant and compelling portions of that disclosure. Thus, we respectfully submit that the teachings of Matsumoto that are directly contrary to those of EP '949 would cause one of ordinary skill in the art to look away from Matsumoto and not to make the hypothetical combination.

In any event, there is nothing in Matsumoto that would suggest to one of ordinary skill in the

art that a nickel sponge or felt of nickel fibers would be advantageous in significantly reducing overall height of the cell, which is, of course, highly important in button cells inasmuch as decreasing size is important. Substitution of a second sponge or felt material could be seen based on the minimal disclosure of Matsumoto to increase the overall height or size of the button cell, thereby defeating one of the primary objectives of improving button cells. There is no disclosure at all in Matsumoto as to how such a nickel sponge or felt of nickel fibers could be employed in a button cell or how such employment could be utilized without increasing the size due to the increased porosity associated with such a sponge or felt. Thus, one of ordinary skill in the art would likely view the disclosure of Matsumoto with respect to the sponge or felt with, at best, skepticism. There are accordingly insufficient teachings, suggestions or motivations to one of ordinary skill in the art to attempt such a hypothetical substitution.

Hypothetically combining Matsumoto with EP '949 would still fail to teach or suggest the subject matter as recited in Claims 1 - 3. Accordingly, it has been necessary to resort to a tertiary reference to cure this deficiency as it applies to having the metallic region fine free of active material at a location on a side bearing against the cell case. Unfortunately, there is nothing in Takahashi that would lead one of ordinary skill in the art to make the hypothetical combination with both Matsumoto and EP '949 in a way that would lead one of ordinary skill in the art to have a reasonable expectation of success. For example, Takahashi suffers the same deficiency as Matsumoto with respect to disclosing a type of battery that is not even remotely close to the button cells of EP '494 and the invention and as evidence thereof, provides a structure which requires a valve or vent to account for the release of gases formed in the battery. This alone would cause one of ordinary skill in the art to look away from Takahashi.

Moreover, Takahashi teaches that the positive electrode sheet is not coated at the portion of its surface opposite to the internal of the battery can with positive electrode active material. In other words, there is no active material associated with the positive electrode at the locations of the battery can. This is in sharp contrast to the invention wherein active material is present in the positive

electrode at locations overlapping with the cell case. However, there is no active material present in a portion of the porous metal foam or metal felt lying against the cell case. The active material is, however, present in the positive electrode at a location overlapping with the cell case.

To clarify this concept, we enclose on a separate sheet a rough drawing showing the subject matter of Claim 3 with Takahashi in a side-by-side manner so that these differences can be fully appreciated. Thus, it can be seen that, in Takahashi, the positive electrode does not contain active material at the can and, at a location X, wherein the positive electrode and the outer can overlap, there is no paste present at all. The closest paste is on the reverse side of the positive electrode. In sharp contrast, it can be seen in a similar overlapping space X in Claims 1 - 3 that the positive electrode contains active material and that, in space X, but in the portion of the electrode bearing against the cell case, there is a region free of active material. As a consequence, we respectfully submit that, even if one of ordinary skill in the art were to hypothetically make the combination, the resulting combination would still result in a structure neither taught nor suggested by Takahashi.

This phenomenon is further complicated by virtue of the fact that Takahashi teaches positive electrodes that are totally different from the electrodes of Matsumoto. Thus, one of ordinary skill in the art would be confronted with the question of which of the positive electrodes to use. As a consequence, the number of variables that one of ordinary skill in the art must select from is sufficiently large that it could not reasonably be expected by one of ordinary skill in the art to make choices which would result in the structure recited in Claims 1 - 3. We accordingly respectfully request withdrawal of the §103 rejection of Claims 1 - 3

The Applicants acknowledge the rejection of Claims 4 - 6 based on the still further combination of a fourth reference. However, JP '269 does not provide teachings or suggestions to one of ordinary skill in the art that would cure the deficiencies set forth above with respect to the hypothetical combination of Takahashi and Matsumoto with the EP '494. Hypothetically combining a fourth reference of completely divergent nature with three other references, also of completely divergent nature, simply does not support a rejection under §103.

The same arguments apply to the rejection of Claims 7 - 9 with the further hypothetical combination of Hara, a fourth reference, against those claims. Also, the same argument applies to the rejection of Claims 11 - 12 over the hypothetical combination of a fourth and fifth reference. None of the fourth or fifth references cures the fundamental deficiencies associated with the hypothetical combination of Takahashi and Matusmoto with EP '949. Withdrawal of the §103 rejections of Claims 4 - 9 and 11 - 12 is respectfully requested.

In light of the foregoing, we respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

  
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TAKATTSU

INVENTION

